

# MRM 30 Analog IMU



- Low Noise & High Performance Rugged Analog MEMS IMU
- $\pm 5$  Volt Signal Output Swing
- Low Gyro Noise  $< 0.003^\circ/\text{sec}/\sqrt{\text{Hz}}$
- Low Accel Noise  $< 0.04\text{mg}/\sqrt{\text{Hz}}$
- In Run Gyro Bias  $8^\circ/\text{hour } 1\sigma$
- Fully Temperature Compensated Bias and Scale Factor
- Compensated Misalignment  $1\text{mrad}$  and g-Sensitivity  $< 0.01^\circ/\text{sec}/\text{g}$
- Input Power +6V to +36V (single sided)
- Light Weight 399 grams
- Size  $359.59\text{cm}^3/21.85\text{in}^3$
- Wide Sensor Bandwidth 140 Hz
- External Sync Input (1 kHz or 1pps)
- Precision Alignment
- Internal Vibration Isolation 6 gRMS
- Shock Resistant 500g's
- 6 Internal Temperature Sensors
- Self Test & No Wearout Modes

Export Classification:  
Commerce ECCN7A994 (NLR)



## Applications

Airborne Platform Stabilization  
Antenna Stabilization & Pointing  
EO/IR Stabilization  
LIDAR Stabilization  
Navigation  
Flight Testing  
Racing Yacht Marine Compass

**Low Noise, Compensated  
Rugged Analog IMU**

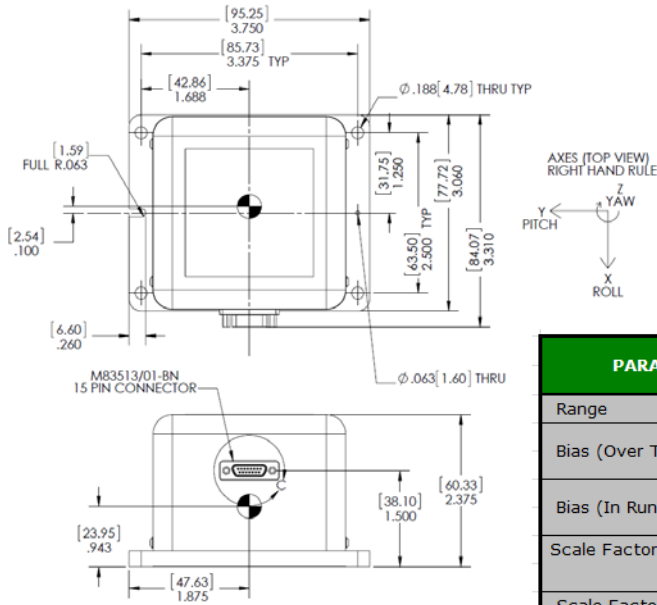


**Gladiator Technologies**  
Division of LKD Aerospace  
High Performance Inertial MEMS

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Rev. 15Mar23  
SN: 253

# MRM 30 Analog IMU



Mating Connector: M83513/01-BN

Pin No.	Assignment
1	RS-485 A (+)
2	RS-485 B (-)
3	Power Ground
4	Case
5	<b>+6V to +36V Input Power</b>
6	External Sync Input (1kHz) Option Connect to ground if not using
7	Temperature = 50mV/°C typical
8	Signal Ground
9	Self Test 3.3V Logic Level
10	Roll Gyro (X) Analog Out ± 5V
11	Pitch Gyro (Y) Analog Out ± 5V
12	Yaw Gyro (Z) Analog Out ± 5V
13	X Accelerometer Analog Out ± 5V
14	Y Accelerometer Analog Out ± 5V
15	Z Accelerometer Analog Out ± 5V

**Standard -200 Model:** The analog signals are ±5 volt scaled maximum measured with respect to signal ground pin 8. Load ≥ 5K Ohms & <100pf on each signal.

**Special -250 Model:** All analog signals are scaled ±2.5 volt maximum with respect to signal reference +2.5V on pin 8. Load ≥ 5K Ohms & <100pf on each signal.

## MRM 30 Analog IMU

MRM30IMU-025-02-200 or -6 or -10  
 MRM30IMU-100-02-200 or -6 or -10  
 MRM30IMU-175-02-200 or -6 or -10  
 MRM30IMU-300-02-200 or -6 or -10

## Specification

PARAMETER	MRM 30 Analog IMU					
	RATE AXES			ACCEL AXES		
Range	±100°/sec	±150°/sec	±300°/sec	±2 g's	±6 g's	±10 g's
Bias (Over Temp.)	<0.03°/sec 2σ			<1.0mg	<1.3mg 1σ	<1.5mg
Bias (In Run Stability)	8°/hour 1σ			0.02mg	0.04mg 1σ	0.08mg
Scale Factor	-200 25mV/°s	33.3mV/°s	16.7mV/°s	2.5V/g	0.83V/g	0.5V/g
Scale Factor Error %	≤0.08% (over temperature) 1σ					
Resolution	0.0015°	0.0025° /sec	0.003°	0.02mg	0.05mg	0.06mg
Angle Random Walk	0.003°	0.005° /sec/√Hz 1σ	0.006°	0.04mg	0.1mg /√Hz 1σ	0.12mg
Alignment	1mrad 1σ					
G-Sensitivity	<0.01°/sec/g 1σ					
Self Test On	Δ 8°/s ± 4 °/s	Δ 8°/s ± 4 °/s	Δ 8°/s ± 4 °/s	Δ 1 ±0.25g	Δ 1.25 ±0.75g	Δ 1.25 ±0.75g
Temp Range	Operating: -40°C to +85°C Non-Operating: -55°C to +100°C					
Bandwidth	140 Hz					
Temp Sensors	6 Internal Temperature Sensors					
Start-up Time	< 0.3 sec					
Input Power	<b>+6.0V to +36V Max. Input (single sided) (Input Transient Protection to 80V)</b>					
Power Consumption	2500 mW at +12V typical 3000 mW at +12V maximum					
Size	U.S.:	3.0 x 3.06 x 2.38 = 21.85 in <sup>3</sup>				
	Metric:	7.62 x 7.8 x 6.05 = 359.59cm <sup>3</sup>				
Weight	399 grams					
Mounting	4ea No.8 or M4 Screws					
Shock	500g's ½ sine 30 msec powered					
Vibration	6 gRMS (20Hz - 2KHz ~ 10g accelerometers)					
MTBF	No inherent wear out modes for long life.					

Specification subject to change without notice



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